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## ENERGY EFFICIENCY OBLIGATION SCHEMES IN THE ENERGY EFFICIENCY DIRECTIVE – AN ENVIRONMENTAL ASSESSMENT

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### Abstract

This paper will focus on the 2012/27/EU Energy Efficiency Directive (EED). Because the EED is a rather new legal act, its assessment from an environmental law perspective has been neglected in the scientific literature. The previous regulation (Directive 2006/32/EC on end-use energy efficiency) has already been analyzed from an ecological point of view (Bányai, 2013). Therefore, the next question automatically arises: does the new directive take steps to improve the European Union (EU) regulations concerning energy efficiency? The EED undoubtedly took a step forward by providing legally binding frameworks for the reduction of energy consumption (instead of the previous political and non-binding energy efficiency goals) and has done this in an absolute way, which is the most important requirement from an ecological point of view. However, despite a few provisions of the Directive having already met the ecological requirements, in reality, the regulation misses theoretical ground.

*Key words:* energy efficiency law, environmental aspect, European Union

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### 1. Introduction

The reduction of energy consumption is not a new issue in the European Union. The necessity of promoting energy efficiency was already present in the European energy programs adopted during the 1980s and especially in the 1990s. Nevertheless, Europe still wastes at least 20% of its energy (de Alegria Mancisidor et al., 2009). The reduction of total energy consumption not only evokes an environmental interest but also promotes the long-term energy security and the competitiveness of the European market. Having recognized its significance, the EU set a policy goal to save at least 20% of total primary energy by 2020 (COM, 2006). The legal environment, which serves the realization of the above-mentioned goal, is going through a continuous evolution (Bányai, 2013).

In the following discussion, our focus will be on the 2012/27/EU Energy Efficiency Directive. Because the EED is a rather new legal act, its

assessment from an environmental law perspective has been neglected in the scientific literature. The previous regulation (EC Directive 2006) has already been analyzed from an ecological point of view (Bányai, 2013). Therefore, the next question suddenly arises: does the new directive take steps to improve the EU regulations concerning energy efficiency?

This paper proceeds as follows. First, the structure of EED will be presented. Then, on the basis of a short conceptual clarification, the targets (character, content) and the energy efficiency obligation scheme of the EED will be discussed in detail. The EED also has further requirements, such as the exemplary role of public buildings, public procurement, energy audits, metering, billing information, promotion of efficiency in heating and cooling, information and training, energy services, other measures to promote energy efficiency and the Energy Efficiency National Fund. However, these

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requirements will not be discussed because they are outside the scope of this paper.

Discussion of the above-mentioned regulation will be based on legal analysis and literature on environmental law.

## 2. The new Energy Efficiency Directive (EED)

According to the act, the EED Directive (2012) should have been transposed by the Member States (MSs) into their national law by 5 June 2014 (Article 28. paragraph 1). However, several provisions, such as strategic planning and notification have a deadline that precedes this date. The adoption of the EED was necessary because the decreasing of energy consumption in the EU was not progressing satisfactorily with regard to the timetable set by previous regulations. Although there was a directive on final energy efficiency, it set too general and elusive requirements, which were not adequate to reach the goal of a 20% reduction in energy consumption (Bányai, 2013). Therefore, the regulation should be improved. The EED is softer compared to the European Commission's initial proposal, but compared to the previous regulation, the EED constitutes a much stronger legal framework in the field of energy consumption (Lo Schiavo, 2013).

The Directive (EED Directive, 2012) is divided into five main chapters: the first is on subject matter, scope, definitions and energy efficiency targets (Articles 1-3); the second is on efficiency in energy use (Articles 4-13); the third is on efficiency in energy supply (Article 14-15); the fourth is on horizontal provisions (Article 16-21); and the fifth is on final provisions (Article 22-29).

## 3. The conceptual system of the EED

To meet the requirements set out by the EED and assess its implementation, clarity in the Directive's definitions is essential. The EED, by developing definitions regarding energy consumption, has added to the previous regulation. Article 2 of the Directive contains 45 definitions. Among others, it defines primary energy consumption, final energy consumption, energy savings, energy efficiency, energy distributor and retail energy sales company. However, despite the EED's aim to be exhaustive, the definitions for terms used by the EED such as energy intensity, primary energy savings and final energy savings are still missing.

Therefore, although defining the above-mentioned terms was urgently necessary, the result is only partially effective. To more easily understand the following text, a few definitions that serve the understanding of the subject matter, the scope of the regulation and the scope of the obligated parties will be set out shortly. First, it should be highlighted that under the scope of the Directive, energy must be broadly construed. The term applies not only to

energy products attached to the network (e.g., gas and electricity) but also to combustible fuels, heat and renewable energy (in accordance with the Regulation 1099/2008/ EC). Accordingly, the retail energy sales company can be an energy (gas, electricity or heat) supplier or another company, such as heating oil, pellet or biomass supplier (transmitter, trader), with the exception of producers who directly sell or provide the public grid with energy from a renewable energy source (Klemm, 2012).

Energy distributor means a natural or legal person, in contrast to the previous regulation, the definition also includes the distribution system operator) responsible for transporting energy with a view to its delivery to final customers or to distribution stations that sell energy to final customers (the EED at this point makes a cross reference to EC Directive 72, (2009) and EC Directive 72, (2009) on the common electricity and gas market).

## 4. Targets in the EED regarding the reduction of energy consumption

The objectives of the EED can be analyzed at three different levels (Scheuer, 2013):

- a) The EU energy savings target for 2020 (Article 1 and 3 and Recital 2)
- b) Indicative national energy efficiency targets (Article 3)
- c) Binding energy end-use saving targets for energy distributors and retail energy sales companies (Article 7)

### 4.1. The EU energy savings target for 2020

The EU in its Energy Efficiency Action Plan set a policy goal to save at least 20% of total primary energy by 2020 compared to the 2020 projections (COM, 2006). The EED confirms this originally non-binding policy target when it mandates that the EU's 2020 energy consumption be no more than 1474 Mtoe of primary energy or no more than 1 078 Mtoe of final energy (Article 3. paragraph 1(a), from EED Directive, 2012). Considering that 1842 Mtoe primary energy consumption was projected by 2020, the 1474 Mtoe of primary energy fully corresponds to a 20% reduction. However, whether the new binding 20% energy savings target perfectly fits in the sustainable energy strategy of the EU also raises the question of whether the implementation of the minimum requirements set down by the Directive is sufficient to achieve this target.

Certain analysts assume that the provisions of the Directive by themselves (e.g., energy efficiency obligation schemes, the exemplary role of public sector, informing the consumers, etc.) are insufficient to meet the 20% target (Scheuer, 2013). Our common position is that if the MSs realize the inherent economical, environmental, social and other opportunities (which are considered definitely positive by all economical analysis) of the

implementation and do not try to find back doors, do not implement requirements at the minimum level and do not try to simply beautify statistical information, the target will be achievable.

It must be noted that the Directive requires the absolute reduction of energy consumption in primary or final energy reduction. This is perfectly appropriate from an ecological point of view because both measures indicate the absolute reduction of energy consumption. At the same time, considering that EC Directive 28 (2009) on the promotion of the use of energy from renewable sources (RED) uses the measure of gross final energy consumption, the question emerges of whether it would not have been a simpler and more proper solution if the reduction of energy consumption would have been expressed in that way by all MSs (however, it should be noted that energy statistics in general also use primary and final energy consumption).

#### 4.2. Indicative national energy efficiency targets

The above-mentioned target concerns the European Union and is not directly binding on MSs. The EED does not contain targets for each MSs (in contrast to the RED's method); therefore, MSs have to set goals for themselves with regard to the overall community target and notify the national targets to the European Commission. These are the so-called indicative energy efficiency targets. According to the impact assessment of the EED, the utilization of binding targets was not necessary. However, the progress needs to be monitored and evaluated. If an evaluation in 2013 shows that this approach endangers reaching the overall European 20% energy efficiency target, a move towards binding national targets needs to be made (SEC, 2011). The Directive in its current form does not provide sanctions or other tools to impose liability on Member States; therefore, MSs are not responsible if the amount of their targets falls behind the overall community target (Klemm, 2012).

To assess a Member State's implementation, the suitability of national target should first be examined. Considering that these targets are not binding on MSs, the EED's requirements regarding the lowering of energy consumption are hardly demanded by the regulation. Another problem is that an ex-post infringement procedure cannot be considered an effective solution because the realization of the target can be recognized only in 2020.

Taking into consideration that to mitigate the effects of climate change, immediate action is required, and effective law enforcement is a basic requirement (Fazekas, 2010). This situation can be aided if the European Commission has enforcement rights when it becomes clear from the interim reviews of the implementation procedure that Member State will fail to meet the national target. At the same time, it can also theoretically constitute an infringement if a Member State does not set an adequate target. However, the EED provides the MSs such a broad interpretation possibility on this issue (e.g., MSs must take into account the overall community target and the former energy savings targets; MSs may also take into account the remaining cost-effective energy savings potential, the GDP forecast, possible changes of energy imports and exports, or early actions) that it would be hard to judge whether MSs set their targets with due care.

In addition, MSs had to notify the European Commission of their national indicative targets by 30 April 2013. The national indicative energy efficiency targets, taken collectively, suggest that the Member States aim to achieve only approximately 16.4% primary energy savings and 17.7% final energy savings by 2020, not the full 20% needed to meet the EU's overall target (COM, 2013). However, a more in-depth evaluation will need to be undertaken. The final evaluation report of the European Commission must be submitted to the European Parliament and Council by 30 June 2014.

#### 4.3. Binding energy end-use saving targets

Article 7 is responsible for half the energy savings the EED should achieve; thus, it is a stressful commitment (COM, 2013). The text of Article 7, perhaps because of its significance, is rather complex and hardly interpretable. The European Commission has published a notification to help the interpretation and implementation (SWD, 2013). According to this notification, the provisions under Article 7.1 require that until 31 December 2020, at least 1.5% of the new savings have to be achieved each year, which must be added to the energy savings of the previous year; therefore, the new savings delivered by 31 December 2020 must be at least 10.5%. This implies that the total amount of final energy savings delivered over the whole seven-year period must be at least 42% (cumulative end-use energy savings target).

**Table 1.** Binding energy end-use saving targets (SWD, 2013)

Year	Energy savings (%)							Total
2014	1.5							1.5
2015	1.5	1.5						3
2016	1.5	1.5	1.5					4.5
2017	1.5	1.5	1.5	1.5				6
2018	1.5	1.5	1.5	1.5	1.5			7.5
2019	1.5	1.5	1.5	1.5	1.5	1.5		9
2020	1.5	1.5	1.5	1.5	1.5	1.5	1.5	10.5
Total	42							

The achievement of the above-mentioned target is legally binding, of course. MSs have to ensure that energy distributors and retail energy sales companies realize it; otherwise they (MSs) may constitute a community infringement. However, Article 7.2 (SWD, 2013) contains few exceptions that can reduce by half the energy savings by 2020 (Scheuer, 2013). This means that if MSs make use of the possibility of exceptions, it can destroy the effectiveness of this Article (Scheuer, 2013; Lo Schiavo, 2013).

First, such an exception is the sales of energy used in transport (Article 7.1, SWD, 2013). This means that in the calculation of binding final-energy savings targets, the energy used in transport should not be considered (partially or fully). This exception could have a great influence on those MSs in which the energy consumption for transportation has great significance due to geographical situations (e.g., Malta, Cyprus). There are also other exceptions (e.g., energy sold to ETS industries; counting energy savings resulting from individual actions implemented since 31 December 2008 that continue to have an impact in 2020), although the application of these exceptions cannot lead to a collective reduction of more than 25% of the target (Article 7.3, SWD, 2013).

This energy efficiency scheme, in fact, does not affect national targets. MSs do not carry the burden of specific commitments (e.g., administrative costs) — they pass it on energy companies.

## 5. Energy efficiency obligation schemes and alternative measures

According to Article 7 of the EED, Member States must establish energy efficiency obligation schemes (EEO) or use alternative policy measures to achieve a certain targeted amount of energy savings. MSs can also combine obligation schemes with alternative policy measures (Article 7.9, EED Directive, 2012); therefore, the Directive does not lay down strict requirements on how to achieve the energy-saving targets.

An EEO scheme is a regulatory mechanism that requires obligated parties to meet quantitative energy savings targets by delivering or procuring eligible energy savings produced by implementing approved end-use energy efficiency measures (RAP, 2012). The achieved energy savings can be verified by certificates (usually called white certificates) issued by the authorizing body. These certificates can also be used for the purpose of state aid or tax reliefs (Bertoldi, 2010). Certificates may have market value because in some schemes, they are tradable. This means that companies can fulfill their obligation by purchasing white certificates. However, trading of energy savings can be carried out bilaterally without the necessity of creating energy efficiency certificates (RAP, 2012).

EEO schemes in general share three key features: a) a quantitative target for energy efficiency improvement; b) obligated parties that must meet the target; and c) a system that defines the energy-saving activities that can be implemented to meet the target, measures, verifies, and reports the energy savings achieved through these activities, and confirms that the activities actually took place (RAP, 2012). Reaching the energy savings target is typically enforced by the threat of financial penalties. To establish and operate an EEO scheme properly, there are numerous international (e.g., USA, Australia, China, South-Korea, etc.) and European (especially British, French, Belgian, Italian, Polish, etc.) experiences, which can serve as good examples (RAP, 2012).

Moving back to the EED, we have already talked about the energy savings target in the previous chapter. Now, we would like to emphasize only that, according to Article 7, the targets will be set by each Member State in the form of primary or final energy savings.

In accordance with the Directive, the obligated parties of the EEO scheme must be the energy distributors and/or retail energy sales companies. Upon this requirement, each MS must designate, on the basis of objective and non-discriminatory criteria, the particular obligated parties amongst energy distributors and/or retail energy sales companies operating in its territory (Article 7.4, EED Directive, 2013). It follows from the wording of the Directive that not all distributors and retail sales company will be involved as obligated party into the scheme. Furthermore, MSs are entitled not only to restrict but also to extend the scope of obligated parties, as they could also designate transport fuel distributors or transport fuel retailers. The right to place transport fuel distributors and retailers under the EEO scheme is not dependent on whether the sales of energy used in transport were taken into account in the calculation of energy savings targets. For the state budget, the fact that energy distributors and energy sales companies are obligated to meet energy savings targets and therefore to finance these savings is definitely the best solution (particularly at the bottom of the economic cycle). However, it must be noted that ultimately, not the obligated parties but the final costumers will pay the costs of energy savings. Nevertheless, according to the literature, this is not problematic because it is in accordance with the polluter pays principle (Lees, 2012). Furthermore, the achieved energy savings leads to decreased household expenditures in the long term.

As can be seen above, the third most important feature of such an EEO scheme is to define the energy-saving activities that can be implemented to meet the target and, furthermore, to measure, verify, and report the energy savings achieved through these activities.

Most EEO schemes establish a list of preapproved energy efficiency measures (RAP, 2012). The EED does not contain such a list, but offers common methods and principles (Annex V) to implement national policy measures for energy savings improvement. In accordance with the Directive, not all policy measures are eligible. For instance, increases and reductions in VAT, even when energy is included in their scope, are not considered eligible measures because its explicit aim is not to increase energy efficiency (Scheuer, 2013). However, MSs may provide that obligated parties be able to fulfill their obligations by contributing annually to the Energy Efficiency National Fund an amount equal to the investments required to achieve those obligations (Article 20.6). Therefore, MSs could directly promote national energy savings initiatives by setting up National Energy Efficiency Funds (this means that the energy services market could be directly developed through fiscal support provided by these Funds).

In a normal case, such a Fund is prejudicial to internal market interests; however, due to environmental reasons, the Directive does not consider it prohibited state aid (Article 107 and 108 of Treaty on the Functioning of the European Union). Nevertheless, it should be ensured that such a Fund is well separated from the Central Government Budget and is managed independently of both the central government and the concerned companies (Schomerus, 2013).

The EED also requires MSs to put in place measurement, control and verification systems under which at least a statistically significant proportion and representative sample of the energy efficiency improvement measures put in place by the obligated parties is verified. That measurement, control and verification must be conducted independently of the obligated parties (Article 7.6). The Directive establishes only the main frameworks of such systems; the elaboration of the details (e.g., specifying the tasks of managing authority and the reporting rules, evolving sanction system, etc.) is left to the MSs. In case the obligated parties do not fulfill their obligations, the EED also requires MSs to set rules on penalties. The penalties provided for must be effective, proportionate and dissuasive (Article 13).

MSs can choose whether they accept only energy savings achieved by obligated parties directly at the final-consumer level or permit obligated parties to count towards their obligation certified energy savings achieved by other third parties (Article 7.4). Such a third party can be an energy service provider or other State-approved body, but in the latter case, MSs must ensure that the approval process is clear, transparent and open to all market actors and aims at minimizing the costs of certification (Article 7.7. b).

Some EEO schemes (e.g., in Italy) allow trading of energy savings among obligated parties (RAP, 2012). The EED does not regulate this issue; however, our opinion is that establishment of an EEO

scheme that allows trading with energy savings complies with the Directive.

According to the experiences, the biggest advantage of EEO schemes is its cost-effectiveness, which means that the energy savings can be carried out at a low cost. However, from another point of view, this can also be a disadvantage because the cost reduction of energy services is able to increase the energy consumption indirectly (De Geeter, 2007; Schomerus, 2013). Therefore, this scheme does not reckon with rebound effects (Henryson, 2000), while the common 20% reduction target should be met.

The Directive allows (instead of or in line with EEO schemes) Member States adopting alternative policy measures to achieve a certain targeted amount of energy savings. This would be recommended in those countries where EEO schemes already exist (therefore, new saving is hardly expected as a consequence of the EEO scheme) and/or where the more flexible and market-oriented regulatory tools are preferred (as in case of Germany, for example) (Schomerus, 2013). The Commission should be notified about such alternative policy measures by the Member States early (by 5 December 2013), otherwise, they lose their right. This suggests that, in fact, EEO schemes are preferred by the Directive (Klemm, 2012).

Several policy measures are expressly mentioned by the EED; however, this is not an exhaustive list, and MSs are entitled to use other measures to decrease final energy consumption as long as these measures lead to new energy savings and go beyond the minimum requirements of EU legislation (Klemm, 2012; Schomerus, 2013). Such measures could include the following: energy and carbon taxes, different financing schemes and instruments, regulations and voluntary agreements, standards and norms, energy labeling schemes, training and education, etc.

On the basis of the discussion above, it can be concluded that the Directive provides MSs wide latitude not only in setting national energy targets but also in the way those targets are achieved. For example, it leaves open the question of whether the establishment of obligations must be realized through legislation or through command and control tools in general, or through fixing the targets and leaving the method of achieving them to the parties (Klemm, 2012). Nevertheless, this regulatory solution is completely acceptable, considering the different national conditions in this field.

## **6. Conclusions**

From an ecological viewpoint, the most important requirement is that the EED must adopt a more effective European regulation regarding energy consumption than the previous scheme, which was definitely infeasible and had no power to motivate serious achievements. The EED will encourage the improvement of energy efficiency in such a way to reduce the energy consumption of the entire

European Union at the same time; therefore, the rebound effects should be taken into account by the EED. This is important because the reduction of the energy sector's ecological footprint is unimaginable when paired with the continuous increase in energy consumption. The regulation will be effective in that case only if the targets set by the EED can be achieved. Therefore, judging the current regulation's effectiveness with absolute certainty will be possible only around 2020, when the final outcome will be clearly determined. Nevertheless, the greater effectiveness is foreshadowed by numerous circumstances, especially the binding nature of the targets, the concrete and strict requirements, the control mechanisms (Schomerus, 2013) and the eligible sanctions.

Regarding the targets, the EED undoubtedly took a step forward by providing legally binding frameworks for the reduction of energy consumption (as compared to the previous political and non-binding energy efficiency goals) and has done this not in a relative, but in absolute way, which is the most important requirement from ecological point of view (Bányai, 2013). Therefore, the Directive inevitably is a step forward, even in the absence of binding national energy efficiency targets (see chapter 4.2). In our opinion, the amendment of the Directive in relation to the non-binding national energy efficiency targets only in the last resort is necessary (taking into consideration that little time is left to achieve the targets by 2020). This can happen if the discussions and investigations regarding the conformity assessment of the national targets take a long time to complete.

Considering the fact that EED is a Directive, the EU should set minimum requirements that are acceptable to all Member States but at the same time are a clear step forward compared to the previous regulation. There are several specific requirements that may play a significant role in the realization of the EED's targets. Among these, the following should be highlighted: establishing energy efficiency obligation schemes or adopting alternative policy measures; the 3% commitment of renovation regarding central government buildings; the obligation of energy audits regarding enterprises that are not small and medium-sized enterprises; the requirement of adequate measures in case of positive cost-benefit analysis regarding installations with total thermal input exceeding 20 MW.

All of these contribute the complexity and often ambiguous (indecisive) phrasing of the Directive's text. It may be said that the EED is the longest (56 pages in the Official Journal) energetic legal act of recent times as well as the most difficult to understand. In this case, the integration of previously different regulatory subjects into one legal act does not result in greater transparency in the regulation (Klemm, 2012). Rather, it makes national legislators' jobs more difficult because they have to survey those legal acts (in the most various subjects, e.g., energetic, building, procurement, etc.) that have

to be amended (as the EED's provisions have cross-sectional nature). At the same time, the EED allows wide latitude in Member States' implementation of the regulation, especially with providing alternatives in most cases and making derogation possible. This wide latitude shifts a significant part of energy policy disputes and conflicts between different interests (or left in conformity with the principle of subsidiarity) to the level of Member States. However, from a legal point of view, this makes possible the enforcement of fundamental rights (especially right to property, freedom to conduct a business) of different actors (e.g., final customers, suppliers, trader, etc.) according to national constitutional laws. Consequently, not only will different regulatory mechanisms be set up at national levels, but different energy efficiency and economic policy conceptions will prevail, which means that among MSs, significant differences will remain (Schomerus, 2013).

Applying alternatives and ambiguous definitions, the range of soft law tools and other similar solutions makes it obvious that the implementation of the Directive will not (disproportionately) restrict the fundamental rights of the obligated parties because flexible and market economies confirm that these types of regulation are possible to implement (Schomerus, 2013).

In the EED, there are provisions regarding both energy supply and energy demand. However, neither the title nor the Recital of the Directive refers to the need for absolute reduction in energy consumption (instead of single energy efficiency improvement). Therefore, although a few provisions of the Directive have already met the ecological requirements, in reality, the regulation misses such theoretical ground. Our opinion is that in for EU regulation regarding energy consumption to improve, the creation and adoption of ecological grounding is essential.

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